

NOTES ON THE FLORA OF EUROPEAN TURKEY

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ABSTRACT. Records are given of 88 species and subspecies of phanerogams that are either new to European Turkey or locally interesting. The following taxa are apparently recorded for the first time from the area: *Chenopodium opulifolium* Schrader ex Koch & Ziz, *Galium* aff. *glaucum* L., *Thymus striatus* Vahl, *Potamogeton pectinatus* L., *Juncellus serotinus* (Rottb.) C. B. Clarke.

In 1972 a Finnish botanical expedition, consisting of two of the authors (I.K. and P.U.) together with Mr Mauri Korhonen, visited Turkey, the Flora Iranica area and the Himalayas (Uotila 1975; Kukkonen & Uotila 1976). The expedition travelled via Istanbul on the way to and from Asia, and plants were collected in European Turkey along the southern main road between Greece, Alexandroupolis and Istanbul, in the periods 8 to 10 April, and 2 to 5 September. Belgrad forest, north of Istanbul was visited both times. The other author (J.J.), accompanied by Mrs I. Jalas, went on excursions in the Balkans in 1973, extending them to European Turkey, where collections were made from 15 to 18 June along the route Edirne—Kirkarelî—Karacaköy—Istanbul—Tekirdağ—Greece.

LIST OF COLLECTING LOCALITIES

The squares of the grid system used in the *Flora of Turkey* are cited in front of vilayet names. The locality number of Kukkonen & Uotila (1976), if relevant, is given within brackets in front of UTM [Universal Transverse Mercator] grid squares (cf. Jalas & Suominen 1972).

1. A1(E) Edirne. 1 km W of Ipsala (c. 5 km E of the Greek border; Loc. 319) UTM: MF2. Alt. 40 m. Pool and wide ditch by the road. 5 Sept. 1972.
2. A1(E) Edirne. Keşan, c. 10 km W of crossing of road to Çanakkale on road E 5 S (Loc. 50). UTM: MF4. Roadside meadows. 8 April 1972.
3. A1(E) Edirne. 5 km NW of Edirne, on the road E 5 N. UTM: MG4. Open clayey ground of a parking place, and nearby slopes. 15 June 1973.
4. A1(E) Edirne. 11 km W of Hasköy. UTM: MG4. Field margin. 16 June 1973.
5. A1(E) Edirne. 5 km E of Hasköy (14 km W of İnece). UTM: MG4. Woods along a rivulet. 16 June 1973.
6. A1(E) Tekirdağ. C. 25 km W of Tekirdağ (Loc. 318). UTM: NF2. Alt. 140 m. Margin of sunflower (*Helianthus*) field. 5 Sept. 1972.
7. A1(E) Tekirdağ. Kumbağ, coastal foothills of Ganosdağı 5 km (7a) and 6 km (7b) S of Barbaros. UTM: NF2. Alt 50–100 m. 18 June 1973.

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8. A1(E) Tekirdağ. 5.5 km SW of Tekirdağ. UTM: NF2. Pastured coastal phrygana and roadsides. Alt c. 50 m. 18 June 1973.
 9. A1(E) Tekirdağ. C. 20 km E of Tekirdağ, on road E 5 S, the bridge Serefli Deresi (Loc. 52). UTM: NF4. Beach. 9 April 1972.
 10. A2(E) İstanbul. C. 8 km W of Karacaköy. UTM: PF1. Woods and meadows along the river Istranca. 16 June 1973.
 11. A2(E) İstanbul. C. 7 km E of Büyüükçekmece (c. 15 km W of Yesilköy airport; Loc. 53). UTM: PF2. Meadow-like vegetation on roadside and within planted stand of young *Pinus*. 9 April 1972.
 12. A2(E) İstanbul. Belgrad Forest c. 25 km N of İstanbul (Loc. 54). UTM: PF3. Alt. 200 m. Slopes with forest of *Quercus* and *Fagus*, roadsides, and margins of pools. 10 April, 2 Sept. 1972.

LIST OF SPECIES

The most interesting discoveries are presented in the following list. The species were selected on the basis of distributional data given by Webb (1966), Davis (1965 onwards), Demiriz et al. (1969) and Tutin et al. (1964 onwards). The specimens are deposited in the Botanical Museum, University of Helsinki, Finland (H); incomplete sets of duplicates are at E, ISTE, ISTF, and in the herbarium of Dr W. Greuter, Geneva.

The following collectors numbers (given in parentheses in the following list) were used in European Turkey:
 2183-2250: Jaakko Jalas, 1973.
 5248-5330, 8372-8415: Ilkka Kukkonen, 1972.
 15404-15491, 20189-20311: Pertti Uotila, 1972.

The sequence of families is that of Engler's *Syllabus der Pflanzenfamilien* ed. 12, i.e. largely the same as in *Flora Europaea*. The nomenclature of the species and subspecies follows *Flora Europaea* as far as possible, taking into account the views presented in *Flora of Turkey*.

In the citation of the specimens, the collecting localities are generally indicated by numbers (see above) preceded by 'Loc.'; 'obs.' indicates a visual record not complemented by a herbarium specimen.

SALVINIACEAE

Salvinia natans (L.) All. – Loc. I (20247).

Neither in Webb (1966) nor in Jalas & Suominen (1972). First recorded for Turkey-in-Europe by Baytop (1968:50) from the Terkos Gölü area.

PINACEAE

Pinaceae — Loc. 7a (2239b); loc. 12 (15449). Obviously planted.

SALICACEAE

Salix alba L. — Loc. 5 (2195); A1(E) Edirne, along rivulets 16 km and 1 km W of Hasköy, UTM: MG4 (obs.).

GOING A STEP

Corylaceae
Carpinus betulus L. — Loc. 10 (2211); loc. 12 (5325, 15447); A2(E) Istanbul, Karacabey, ITM; PEI (2212).

Corylus avellana L. — Loc. 12 (3313); loc. 13 (8202).

FAGACEAE

Quercus frainetto Ten. — A1(E) Kirkclareli, 7 km E of Pinarhisar, UTM: NG2, characteristic species, with *Q. pubescens*, in the extensive and heavily pastured oak woods (2203).

Q. pubescens Willd. — A1(E) Kirkclareli, 20 km W of Kirkclareli, UTM: NG2, solitary trees scattered in the fields (2198), and 7 km E of Pinarhisar, UTM: NG2, see above (2204).

Q. trojana Webb — Loc. 12 (8388).

ULMACEAE

Ulmus minor Miller — A1(E) Edirne, 5 km W of Hasköy, UTM: MG4, solitary trees scattered in the fields (2194).

LORANTHACEAE

Viscum album L. subsp. *album* — A1(E) Tekirdağ, 8 km W of Malkara (Loc. 51), UTM: MF4, on *Pyrus communis* (5255).

POLYGONACEAE

Polygonum aviculare L. *s.str.* (*P. heterophyllum* Lindman) — Loc. 3 (2183).

P. pulchellum Lois. — Loc. 6 (20299).

CHENOPodiaceae

Atriplex patula L. — Loc. 6 (20311).

A. tatarica L. — A1(E) Tekirdağ, town centre, UTM: NF2, wide stand on new roadside (20297).

Chenopodium album L. — Loc. 6 (20305); A2(E) Istanbul, 20 km W of the city, UTM: PF2 (20240) and Beyazit, UTM: PF4, weed in the Botanical Garden (20238).

C. opulifolium Schrader ex Koch & Ziz — Loc. 6 (20306); A2(E) Istanbul, Beyazit, UTM: PF4, weed in the Botanical Garden (20237).

No earlier records from Turkey-in-Europe; an under-collected species (Uotila 1975).

CARYOPHYLLACEAE

Cerastium glomeratum Thuill. — Loc. 2 (5270a, 15917a); loc. II (5304, 15420).

Holosteum umbellatum L. — Loc. 2 (5273b).

Stellaria media (L.) Vill. subsp. *media* — Loc. 12 (15477).

S. media subsp. *pallida* (Dumort.) Aschers. & Graebn. [*S. pallida* (Dumort.) Pire] — Loc. 2 (5271, 15416); loc. II (5296).

CERATOPHYLLACEAE

Ceratophyllum demersum L. — Loc. I (20251).

RANUNCULACEAE

Ranunculus ficaria L. subsp. *calthifolius* (Reichb.) Arc. — Loc. 2 (15409).

R. ficaria subsp. *ficariformis* Rouy & Fouc. — Loc. II (5284).

R. sphaerospermus Boiss. & Blanche — Loc. 9 (15418) (conf. C. D. K. Cook).

R. ? trichophyllum Chaix — Loc. I (20250).

Highly sterile, perhaps a hybrid with *R. rionii* Lagger (det. C. D. K. Cook).

PAPAVERACEAE

Chelidonium majus L. — Loc. 10 (obs.).

Fumaria kralikii Jordan — Loc. 9 (15429).

RHIZOMATOSEAE

ACIDENOPODIACEAE

CHLORIDIACEAE

GIGANTOPHYLLACEAE

CRUCIFERAE

Capsella rubella Reuter — Loc. 2 (15405); loc. 11 (5289); loc. 12 (15487).

There is only one record of *C. rubella* in Webb (1966) but several of the related species *C. bursa-pastoris* (L.) Med., which was not observed by the authors.

Cardamine uliginosa Bieb. — Loc. 12 (5324, 15463).

Erophila verna (L.) Chevall. subsp. *verna* — Loc. 2 (5275, 15413); loc. 11 (5302).

Rapistrum rugosum (L.) All. — Loc. 6 (20303).

ROSACEAE

Pyrus bulgarica Kuthath. & Sachok. (*P. elaeagrifolia* auct. non Pallas) — Loc. 7a (2246).

P. communis L. subsp. *caucasica* (Fedorov) Browicz — Loc. 11 (5277).

Cited as "? Tu" in *Flora Europaea* (as *P. caucasica* Fedorov); not given from Turkey-in-Europe in Davis (1972).

LEGUMINOSAE

Medicago lupulina L. var. *lupulina* — Loc. 11 (15427).

Ononis pubescens L. — Loc. 8 (2234).

Psoralea bituminosa L. — Loc. 7b (2249).

Robinia pseudacacia L. — Loc. 5 (obs.); loc. 12 (8399).

Spartium junceum L. — Loc. 7a (obs.); A1(E) Tekirdağ, 3 km S of Kumbağ, UTM: NF2, common in the lower parts of the foothills of Ganoşdağı (obs.); A2 (E) İstanbul, 4 km W of Karacaköy, UTM: PF1, together with *Osyris alba* L. and *Erica arborea* L. (2214).

Vicia lathyroides L. — Loc. 2 (5269).

GERANIACEAE

Erodium acaule (L.) Becherer & Thell. — Loc. 9 (15438).

Geranium molle L. subsp. *molle* — Loc. 2 (5274); loc. 9 (15434); loc. 11 (5286); loc. 12 (8375).

LINACEAE

Linum trigynum L. (*L. gallicum* L.) — Loc. 7a (2243).

EUPHORBIACEAE

Chrozophora tinctoria (L.) A. Juss. — Loc. 6 (20310).

RUTACEAE

Haplophyllum suaveolens (DC.) G. Don — Loc. 3 (2187).

HALORAGACEAE

Myriophyllum spicatum L. — Loc. 1 (20252).

UMBELLIFERAE

Ammi visnaga (L.) Lam. — Loc. 6 (8405).

Smyrnium creticum Miller (*S. orphanidis* Boiss.) — Loc. 7a (2241).

PRIMULACEAE

Lysimachia atropurpurea L. — Loc. 10 (2213).

ASCLEPIADACEAE

Cionura erecta (L.) Griseb. (*Marsdenia erecta* (L.) R.Br.) — Loc. 7a (2241).

RUBIACEAE

Gallium aff. glaucum L. (cf. *Asperula octonaria* Klokov) — Loc. 3 (2186).

No species of this affinity are mentioned by Webb (1966).

Sherardia arvensis L. — Loc. 2 (5272, 15404); loc. 11 (5309, 15423).

BORAGINACEAE

Alkanna tinctoria (L.) Tausch — Loc. 2 (5258).

Echium angustifolium Miller (incl. *E. diffusum* Sibth. & Sm.) — Loc. 8 (2235).

LABIATAE

Lamium amplexicaule L. — Loc. 2 (15406); loc. 9 (15432), matches with subsp. *orientale* Pacz.; loc. 11 (5307, 5308).

Lycopus europaeus L. — Loc. 1 (20245).

Micromeria myrtifolia Boiss. & Hohen. — Loc. 7a (2238).

Sideritis montana L. subsp. *montana* — A1 (E) Tekirdağ, 2 km SW of Sultanköy, UTM: NF4 (2228).

Stachys annua (L.) L. — Loc. 6 (20304).

S. thirkei C. Koch — Loc. 3 (2185).

Thymus atticus Čelak. — Loc. 7b (2248).

T. striatus Vahl — A1 (E) Kirkclareli, İnece, c. 16 km W of Kirkclareli, UTM: NG2 (2200a).

This is the first record from Turkey. It belongs to the curious variant called *T. comptus* (auct. non Friv.), which has a long interrupted inflorescence and is locally common in parts of the Thracian plain of Bulgaria.

SOLANACEAE

Solanum luteum Miller subsp. *alatum* (Moench) Dostál — Loc. 1, road embankment (20307).

SCROPHULARIACEAE

Gratiola officinalis L. — Loc. 1 (20243).

Kickxia spuria (L.) Dumort. — Loc. 6 (20298).

Odontites verna (Bellardi) Dumort. subsp. *serotina* (Dumort.) Corb. — Loc. 6 (20300).

Veronica cymbalaria Bodard — Loc. 12 (15485).

Not mentioned from Turkey in *Flora Europaea* although listed from several localities by Webb (1966:55).

V. hederifolia L. subsp. *triloba* (Opiz) Čelak. — Loc. 2 (5265); loc. 11 (5290).

Regarded by Fischer (Öst. Bot. Zeitschr. 114:198, 1967) as a distinct species.

GLOBULARIACEAE

Globularia trichosantha Fischer & C. A. Meyer — Loc. 11 (5287).

LENTIBULARIACEAE

Utricularia australis R. Br. — Loc. 1 (20249).

Not mentioned by Webb (1966).

VALERIANACEAE

Valerianella carinata Loisel. — Loc. 2 (5267).

MORINACEAE

Morina persica L. — Loc. 7b (2247).

DIPSACACEAE

Scabiosa atropurpurea L. — Loc. 6 (8413).

COMPOSITAE

Pilosella hoppeana (Schultes) C. H. & F. W. Schultz cf. subsp. *troica* (Zahn) Sell & West — A2(E) Tekirdağ, Safaalan (E of Saray), UTM: NF3, disturbed heath-like vegetation (*Genista carinatis*, *G. tinctoria*), on sandy soil (2210). With inner involucral bracts 8–12 × c. 1.5 mm, lanceolate and acute, this plant obviously matches the anomalous specimen cited by Davis (1975:751) from Kirkclareli.

Xanthium strumarium L. subsp. *cavanillesii* (Schouw) D. Löve & Dansereau — Loc. 6 (20308).

POTAMOGETONACEAE

Potamogeton panormitanus Biv. (*P. pusillus* L. sensu Dandy & Taylor) — Loc. 1 (20254).

P. crispus L. — Loc. 1 (20255).

P. pectinatus L. — Loc. 9 (15428). New for Turkey-in-Europe.

NAJADACEAE

Naias minor All. — Loc. 1 (20253, 20256).

LILIACEAE

Muscari neglectum Guss. (*Hyacinthus racemosus* L., nomen ambig.). — Loc. 9 (15430); loc. 11 (5299).

JUNCACEAE

Luzula forsteri (Sm.) DC. — Loc. 6 (5252); loc. 12 (15476). (det. L. Hämet-Atti).

CYPERACEAE

Carex distans L. — Loc. 3 (2189). (conf. L. Fagerström).

Juncellus serotinus (Rottb.) C. B. Clarke (*Cyperus serotinus* Rottb.) — Loc. 1 (8403).

Not listed by Webb (1966).

Pycreus glaber (L.) Hayek (*Cyperus glaber* L.) — Loc. 1 (8404).

GRAMINEAE

Alopecurus myosuroides Huds. — Loc. 9 (15437b).

A. utriculatus Banks & Soland. — Loc. 2 (5260); loc. 9 (15437a).

Paspalum paspaloides (Michx.) Scribner (*P. distichum* auct. non L.) — Loc. 1 (20242).

Nomenclature according to Bor (1970:494).

LEMINACEAE

Spirodela polyrhiza (L.) Schleiden — Loc. 1 (20248).

Not mentioned by Webb (1966); first recorded for Turkey-in-Europe by Baytop (1968:53), from Terkos Gölü.

TYPHACEAE

Typha australis Schum. & Thonn. (*T. angustata* Bory & Chaub.) — Loc. 1 (20246).

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